

In the Claims:

Please cancel claims 52-56 and 61-90, amend claim 1, and add claims 91-98, all as shown below.

All pending claims are reproduced below, including those that remain unchanged.

- 17
1. (Currently Amended): A memory apparatus, comprising:
- a moveable media having a first substrate comprising silicon dioxide, said moveable media
having a surface for placing anomalies thereon;
- a moveable reading/writing read/write mechanism, including:
- a moveable read/write platform having a second substrate comprising silicon dioxide;
- and
- at least one fine tip portion a plurality of tips attached to connected with said
moveable read/write platform such that each of the at least one fine tip portion is adapted to be independently
actuated toward said media surface;
- a media movement mechanism operably attached to said moveable media and configured to
move said media platform in response to media control signals; and
- a read/write platform movement mechanism operably attached to said read/write platform
and configured to move said read/write platform in response to read/write platform control signals;
- wherein each of said at least one fine tip portion plurality of tips comprises a device
configured to can cause the formation of an anomaly on said surface and can read an anomaly on said
surface.
2. (Original): The memory apparatus according to Claim 1, further comprising:
- an i/o device having,

an addressing port for identifying an address corresponding to an area of said media surface where data is to be one of written and read,

an i/o port for transferring one of data to be read from and written to said media surface via said at least one fine tip portion, and

an addressing control device configured to send control signals to each of said media and platform movement mechanisms so that said at least one fine tip portion passes an area on said media surface corresponding to an address identified at said addressing port.

3. (Original): The memory apparatus according to Claim 1, wherein said writing fine tip portion comprises an electromagnetic radiation energy source.

4. (Original): The memory apparatus according to Claim 1, wherein said reading fine tip portion comprises an electromagnetic radiation sensitive receptor.

5. (Original): The memory apparatus according to Claim 1, wherein said writing fine tip portion applies a repositioning force comprising at least one of a mechanical force, chemical force, electrostatic force, electromagnetic radiation, and magnetic field to cause said anomalies.

6. (Original): The memory apparatus according to Claim 5, wherein said writing fine tip portion utilizes said repositioning force to at least one of remove and reposition of at least one of atoms, molecules, electrons, and magnetic domains at least one of above, on and below said media surface to cause said anomalies.

7. (Original): The memory apparatus according to Claim 1, wherein:

said reading fine tip is configured to detect at least one of current, voltage electromagnetic radiation, vibration parameters [phase and amplitude] having been one of caused or affected by said anomalies.

8. (Original): The memory apparatus according to Claim 1, further comprising:

an analysis device configured to analyze at least one of,
patterns of current between said reading fine tip and said media surface,
patterns of electromagnetic radiation received from said media surface in response to a stimulus,
patterns of shifting phase of vibrations of said reading fine tip;
patterns of changing amplitude of said reading fine tip; and
patterns of at least one of current and voltage between said reading fine tip and said media surface.

9. (Original): The apparatus according to Claim 2, wherein at least one of said media movement mechanism and said platform movement mechanism comprises:

an electrostatic device constructed to move at least one of said media and said platform based on an applied electrostatic potential; and

a electrostatic control and supply device connected to said addressing control device and configured to apply an electrostatic potential to said electrostatic device to move at least one of said media and said platform to pass said area on said media surface according to the control signals sent by said addressing control device.

10. (Previously Amended): A memory apparatus, comprising:
- a movable media having a surface for placing anomalies thereon;
 - a moveable reading/writing mechanism, comprising:
 - a moveable platform; and
 - at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;
 - a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;
 - a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;
 - wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said surface;
 - an i/o device having:
 - an addressing port for identifying an address corresponding to an area of said media surface where data is to be one of written and read;
 - an i/o port for transferring one of data to be read from and written to said media surface via said at least one fine tip portion; and
 - an addressing control device configured to send control signals to each of said media and platform movement mechanisms so that said at least one fine tip portion passes an area on said media surface corresponding to an address identified at said addressing port;
 - wherein at least one of said media movement mechanism and said platform movement mechanism comprises:

an electrostatic device constructed to move at least one of said media and said platform based on an applied electrostatic potential; and

a electrostatic control and supply device connected to said addressing control device and configured to apply an electrostatic potential to said electrostatic device to move at least one of said media and said platform to pass said area on said media surface according to the control signals sent by said addressing control device;

wherein said electrostatic device comprises:

B
a series of prong sets, wherein said prong sets are attached in series such that a first of said prong sets is attached at a first end to a fixed position of said apparatus, and a second end of said first prong set is attached to a first end of a second of said prong sets, and so on, until a last (n) of said prong sets is attached at a first end to a second end of an n-1 prong set, and a second end of said last (n) prong set is attached to one of said media and said platform;

each prong set comprises a series of at least two prongs, each prong in a set is separated from other prongs of a same set by a gap, each prong constructed of at least one conductor and connected to said electrostatic supply source such that opposite electrostatic forces are applied to alternating of said prongs in a same set by said electrostatic supply; and

when said opposite electrostatic forces are applied to any of said prong sets, said gaps in the electrostatically charged prong set collapse an amount based on a magnitude of said opposite electrostatic forces causing said series of prong sets to collapse and move one of said media and said platform.

11. (Original): The apparatus according to Claim 10, wherein said electrostatic control and supply device is further configured to calculate an amount of electrostatic potential to apply to said electrostatic device.
12. (Original): The apparatus according to Claim 9, further comprising a calibration mechanism configured to move said media and said platform to a full extent of a range of motions and determine amounts of electrostatic force needed to move said media to plural positions in relation to said platform.
13. (Original): The apparatus according to Claim 10, wherein said electrostatic device comprises:
- a fixed comb having fingers protruding in an x-axis direction,
 - a moving comb having fingers protruding in an x-axis direction and interleaved among said fingers of said fixed comb,
 - bars attached to said moving comb, said bars being rigid in a y-axis direction and flexible in an x-axis direction to allow motion of said moving comb in said x-axis direction but maintaining separation of fingers of said fixed and moving combs in said y-axis direction,
 - a coupling rod attached to said moving comb and one of said media and said platform, and
 - an electrical path connected to said fixed comb and an electrical path connected to said moving comb such that an electrical potential can be placed between said fixed and moving combs.
14. (Original): The apparatus according to Claim 13, wherein said fingers of said fixed and moving combs are notched to increase a surface area of opposing surfaces between fingers of said fixed and said moving combs.

15. (Original): The apparatus according to Claim 14, wherein said notches between said fingers of said fixed and moving combs are staggered.

16. (Original): The apparatus according to Claim 10, wherein:
at least one of said media movement mechanism and said platform movement mechanism comprises,

a comb drive, comprising,

a fixed comb having fixed fingers,

a moving comb having moving fingers interleaved between said fixed fingers,

a flex rod connected to said moving comb,

inputs connected to each of said fixed and moving combs and configured to allow application of an electrostatic force between said fixed and moving combs.

17. (Original): The apparatus according to Claim 16, wherein:
each of said fixed and moving fingers include notches; and
positions of notches on said fixed fingers are staggered with positions of said notches on said moving fingers.

18. (Original): The apparatus according to Claim 10, wherein:
said electrostatic device comprises:
a spring actuator assembly, comprising,
at least two conductive materials layered between an insulator, and

electrical paths connecting potentials from said electrostatic device to said conductive materials,

wherein said spring actuator moves in an x-direction when electrostatic forces are applied to said conductive layers, and said spring actuator is compliant at right angles (a y-direction) to said first direction, such that one of said media and said platform move freely based on said electrostatic forces in said x and y directions.

19. (Original): The apparatus according to Claim 16, wherein said actuator assembly comprises a multi-layer film of conductive patterned thin film with insulators between layers.

20. (Original): The apparatus according to Claim 1, wherein at least one of said media movement mechanism and said platform movement mechanism comprises,

an thermal drive mechanism, comprising,

a set of at least one thermal actuators,

a coupling rod attached to each of said set of at least one thermal actuator and one of said media and said platform, and

electrical paths to each of said thermal actuators;

wherein electricity supplied via said electrical paths causes a thermal expansion in said thermal actuators that moves said coupling rod.

21. (Original): The apparatus according to Claim 20, further comprising:

a sensor configured to detect an amount of movement of said thermal actuators;

wherein said sensor provides feedback to a control device regulating an amount of the electricity supplied.

22. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

wherein at least one of said media movement mechanism and said platform movement mechanism comprises:

an thermal drive mechanism, comprising:

a set of at least one thermal actuators;

a coupling rod attached to each of said set of at least one thermal actuator and one of said media and said platform; and

electrical paths to each of said thermal actuators;

wherein electricity supplied via said electrical paths causes a thermal expansion in said thermal actuators that moves said coupling rod;

a sensor configured to detect an amount of movement of said thermal actuators;

wherein said sensor provides feedback to a control device regulating an amount of the electricity supplied;

wherein said sensor comprises a capacitance sensor, comprising:

a fixed comb having fingers protruding in an x-axis direction;

a moving comb connected to said coupling having fingers protruding in an x-axis direction and interleaved among said fingers of said fixed comb;

bars attached to said moving comb, said bars being rigid in a y-axis direction and flexible in an x-axis direction to allow motion of said moving comb in said x-axis direction but maintaining separation of fingers of said fixed and moving combs in said y-axis direction; and

an electrical path connected to said fixed comb and an electrical path connected to said moving comb, and a capacitive measurement device configured to measure a capacitance between said fixed and moving combs.

23. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

wherein said at least one of said media movement mechanism and said platform movement mechanism comprises:

a capacitive comb array comprising:

a fixed comb and a moving comb each having a set of fingers interleaved between the other set of fingers; and

capacitive outputs configured to allow a measurement of capacitance carried by said comb array;

said apparatus further comprising:

at least one thermally active block attached to said moving comb and configured to move said moving comb by thermal expansion; and

an actuator connected to said moving comb and to one of said media and said platform.

24. (Original): The apparatus according to Claim 1, wherein:

said media is constructed from a substrate having a texture coating applied and removed, leaving surface texture on said media.

25. (Original): The apparatus according to Claim 1, wherein:
said media comprises a substrate having a surface with texture marks thereon.
26. (Original): The apparatus according to Claim 1 wherein:
said media comprises a substrate having a surface with track and sector marks thereon.
27. (Previously Amended): The apparatus according to Claim 26, further comprising an alignment device configured to move said media and said platform such that said at least one fine tip portion moves across said track and sector marks and calibrate said media movement mechanisms based on detection of said track and sector marks by said at least one fine tip portion.
28. (Original): The apparatus according to Claim 1, wherein
said at least one fine tip portion comprises an arm having a chamfered tip coated in a ferromagnetic material; and
said fine tip portion is configured to detect at least one of magnetic domains and magnetic domain voids on said media surface.
29. (Previously Amended): A memory apparatus, comprising:
a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:
a moveable platform; and
at least one fine tip portion attached to said moveable platform configured to write
(cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface; and

a re-planing device configured to remove at least part of each anomaly on said media surface.

30. (Original): The apparatus according to Claim 1, further comprising
at least one positioning mechanism attached to said platform and at least one of said fine tip portions,
said positioning mechanism configured to position said fine tip portion at one of at, above, and below said media surface while reading, and position said fine tip at one of at, above, and below said media surface while writing.

31. (Original): The apparatus according to Claim 1, wherein each fine tip portion comprises:
a cantilever attached to each fine tip portion; and
an activation/pickup device connected to each cantilever.

32. (Previously Amended): A memory apparatus, comprising:
a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:

B1

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

wherein each fine tip portion further comprises:

a cantilever attached to each fine tip portion; and

an activation/pickup device connected to each cantilever;

wherein said activation/pickup device is at least one of electrostatically and capacitively activated causing said cantilever to vibrate near a resonance frequency of said cantilever; and said activation/pickup mechanism is configured to detect a phase change of vibrations of said cantilever caused by said fine tip interacting with said media surface via at least one of electrical, magnetic, and physical forces.

33. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface; and

a cleaning device configured to remove unwanted particles from said fine tip.

34. (Original): The apparatus according to Claim 1, wherein said fine tip portion comprises:
a source configured to produce electromagnetic radiation emanations; and
a focusing device configured to direct said emanations to a predetermined location on said media surface.

35. (Original): The apparatus according to Claim 34, further comprising a receptor configured to receive a return of said emanation from said media surface.

36. (Original): The apparatus according to Claim 34, wherein:
said source comprises one of a light emitting diode and a LASER; and
said focusing device comprises a waveguide configured to direct a narrow beam from said fine tips.

37. (Previously Amended): The apparatus according to Claim 35, wherein said receptor comprises a polarizing film and a photodiode.

38. (Original): The apparatus according to Claim 1, further comprising a z-axis mechanism connected to at least one of said fine tip portions and said platform,

wherein said z-axis mechanism is configured to place said at least one of said fine tip portions at least one of on and near said media surface.

39. (Original): The apparatus according to Claim 1, wherein each fine tip portion comprises:

a cantilever having a chamfered tip; and

a z-axis drive mechanism attached to said platform and connected to said cantilever;

wherein said z-axis drive mechanism is configured to place said cantilever at least one of on and a close proximity to said media surface.

40. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

131
a z-axis mechanism connected to at least one of said fine tip portions and said platform,
wherein said z-axis mechanism is configured to place said at least one of said fine tip portions
at least one of on and near said media surface;

wherein said z-axis drive mechanism comprises:

a cantilever connected to said fine tip portion at one end, and at least one set of comb
fingers rotatably attached to said platform allowing movement of said cantilever and said fine tip portion in
at least a z-axis direction;

at least one set of fixed comb fingers attached to said platform and interleaved
between fingers of said rotatably attached comb fingers;

an electrostatic source attached to each of said fixed and rotatable comb fingers and
configured to apply an electrostatic force between said fixed and rotatable comb fingers; and

a control device configured to control an amount of said electrostatic force applied
to said fixed and rotatable comb fingers;

wherein, an electrostatic force applied by said electrostatic source between said fixed and
rotatable comb fingers causes motion of said rotatable comb fingers and said cantilever and said fine tip
portion to move in at least a z-axis direction.

41. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write
(cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

a z-axis mechanism connected to at least one of said fine tip portions and said platform;

wherein said z-axis mechanism is configured to place said at least one of said fine tip portions at least one of on and near said media surface;

wherein said z-axis drive mechanism comprises:

a cantilever connected to said fine tip portion at one end, and at least one set of comb fingers rotatably attached to said platform allowing movement of said cantilever and said fine tip portion in at least a z-axis direction;

at least one set of fixed comb fingers attached to said platform and interleaved between fingers of said rotatably attached comb fingers; and

a capacitance detection mechanism attached to each of said fixed and rotatable comb fingers and configured to determine an amount of capacitance between said fixed and rotatable comb fingers;

wherein, said capacitance detection mechanism detects an amount of capacitance between said fixed and rotatable comb fingers to determine a z axis position of said fine tip portion.

42. (Original): The apparatus according to Claim 41, wherein said Z axis drive mechanism further comprises:

a movement device configured to move said cantilever and said fine tip portion at least one of on and in close proximity to said media surface.

43. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a movable reading/writing mechanism, comprising:

a movable platform; and

at least one fine tip portion attached to said movable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said movable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

a z-axis mechanism connected to at least one of said fine tip portions and said platform;

wherein said z-axis mechanism is configured to place said at least one of said fine tip portions at least one of on and near said media surface;

wherein said z-axis drive mechanism comprises:

a lever connected to said fine tip portion at one end;

a torsion bar connected at a second end of said lever;

an isolation bridge connected at one of said second end of said lever and said torsion bar;

a second torsion bar connected to said isolation bridge;
a moving surface connected to one of said isolation bridge and said second torsion bar; and

a fixed surface placed under said moving surface;
wherein said isolation bridge electrically isolates said lever and at least one of said second torsion bar and said moving surface and an electrostatic force applied to said fixed and moving surfaces causes said moving surface to twist at least one of said first and second torsion bars and cause at least one of said isolation bridge and said lever to move in a z-axis direction.

44. (Original): The apparatus according to Claim 43, wherein at least one of said surfaces comprises a grid.

45. (Previously Amended) A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:
a moveable platform; and
at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;
a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;
a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

a z-axis mechanism connected to at least one of said fine tip portions and said platform;

wherein said z-axis mechanism is configured to place said at least one of said fine tip portions at least one of on and near said media surface;

wherein said z-axis drive mechanism comprises:

a lever connected to said fine tip portion at one end;

a thermal bimorph, comprising a heater, and at least two materials of different expansion coefficients;

wherein a current applied to the heater raises the temperature of the bimorph, causing the bimorph to expand or contract and move said lever and said fine tip portion in a z-axis direction.

46. (Original): The apparatus according to Claim 45, wherein said heater is a poly-silicon resistor.

47. (Original): A method of operating a reading fine tip utilized in at least one of reading and writing a media surface, comprising the steps of:

emanating an electromagnetic radiation signal from said fine tip toward a media surface;

receiving a return electromagnetic radiation signal by a receptor offset from said fine tip;

determining a pattern in said return electromagnetic radiation signal caused by an object between said receptor and an origin of said return electromagnetic radiation signal;

calculating a position of said object based on said pattern; and

adjusting a height of said fine tip above said media to prevent contact of said fine tip with said object.

48. (Original): The method according to Claim 47, wherein step of determining a pattern comprises the step of:

recognizing at least one of a shadow and a penumbra cast by said object in said return signal.

49. (Previously Amended): A memory apparatus, comprising:

a movable media having a surface for placing anomalies thereon;

a moveable reading/writing mechanism, comprising:

a moveable platform; and

at least one fine tip portion attached to said moveable platform configured to write (cause) anomalies and read anomalies on said media surface;

a media movement mechanism attached to said moveable media and configured to move said media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface;

a z-axis mechanism connected to at least one of said fine tip portions and said platform;

wherein said z-axis mechanism is configured to place said at least one of said fine tip portions at least one of on and near said media surface;

wherein said z-axis drive mechanism comprises:

a cantilever having said fine tip attached at a first end;

a moving assembly attached to said cantilever, comprising,

a torsion bar electrically isolated and attached to said cantilever, and
a force receiver attached to said cantilever and
configured to apply force to said cantilever;
a force applicator configured to apply force to said force receiver; and
a base configured to support said torsion bars and allow movement of said torsion
bars, said cantilever, and said force receiver upon application of said force to said force receiver.

50. (Original): The apparatus according to Claim 49, wherein:

131
said force receiver comprises a set of cantilever fingers;
said force applicator comprises a set of fixed fingers inter-spaced between said cantilever
fingers;
said cantilever and fixed finger are conductive; and
said force comprises an electrostatic potential applied between said cantilever and fixed
fingers.

51. (Original): The apparatus according to Claim 50, wherein:

said torsion bar is attached to said cantilever at a fulcrum point;
said cantilever fingers comprise,
a first set of cantilever fingers attached to said cantilever at the fine tip end of said fulcrum
point, and
a second set of cantilever fingers attached to said cantilever at said opposite end of said
fulcrum point; and
said fixed fingers comprise,

a first set of fixed fingers inter-spaced between said first set of cantilever fingers, and
a second set of fixed fingers inter-spaced between said second set of cantilever fingers;
said first and second sets of cantilever and fixed fingers apply forces in opposite directions
(downward and upward) causing motion of said cantilever about said fulcrum.

52-56 (Cancel)

57. (Previously Amended): A memory apparatus, comprising:

31
a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:
a moveable platform; and
at least one fine tip portion attached to said moveable platform configured to write
(cause) anomalies and read anomalies on said media surface;
a media movement mechanism attached to said moveable media and configured to move said
media in response to media control signals;
a platform movement mechanism attached to said platform and configured to move said
platform in response to platform control signals;
wherein said at least one fine tip portion comprises a device configured to cause the
formation of an anomaly on said media surface; and
nubs placed between said media and said platform for providing a bearing for movement of
said platform relative to said media.

58. (Previously Amended): A memory apparatus, comprising:

B/

a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:
a moveable platform; and
at least one fine tip portion attached to said moveable platform configured to write
(cause) anomalies and read anomalies on said media surface;
a media movement mechanism attached to said moveable media and configured to move said
media in response to media control signals;
a platform movement mechanism attached to said platform and configured to move said
platform in response to platform control signals;
wherein said at least one fine tip portion comprises a device configured to cause the
formation of an anomaly on said media surface; and
wherein said media comprises an amplifying media having electrodes at ends of said media,
and a control area activated by said tip.

59. (Previously Amended): A memory apparatus, comprising:
a movable media having a surface for placing anomalies thereon;
a moveable reading/writing mechanism, comprising:
a moveable platform; and
at least one fine tip portion attached to said moveable platform configured to write
(cause) anomalies and read anomalies on said media surface;
a media movement mechanism attached to said moveable media and configured to move said
media in response to media control signals;

a platform movement mechanism attached to said platform and configured to move said platform in response to platform control signals;

wherein said at least one fine tip portion comprises a device configured to cause the formation of an anomaly on said media surface; and

wherein said media comprises a material having energy wells with increased capacitance for storing data on said media.

60. (Original): The apparatus according to Claim 59, wherein said media comprises a substrate having pits placed thereon, and layers of doped material and insulators covering said media.

61-90 (Cancel)

91. (New): A memory apparatus, comprising:

a moveable media having a first substrate comprising silicon dioxide, said moveable media having a surface for placing anomalies thereon;

a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate comprising silicon dioxide;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

92. (New): A memory apparatus, comprising:

a moveable media having a first substrate comprising a dielectric, said moveable media having a surface for placing anomalies thereon;

a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate comprising an oxide;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

93. (New): A memory apparatus, comprising:

a moveable media having a first substrate comprising an insulator, said moveable media having a surface for placing anomalies thereon;

13
a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate comprising an oxide;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

94. (New): A memory apparatus, comprising:

a moveable media having a first substrate comprising a dielectric, said moveable media having a surface for placing anomalies thereon;

a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

95. (New): A memory apparatus, comprising:

a moveable media having a first substrate comprising an insulator, said moveable media having a surface for placing anomalies thereon;

a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

96. (New): A memory apparatus, comprising:

a moveable media having a first substrate, said moveable media having a surface for placing anomalies thereon;

a moveable read/write mechanism, including:

a moveable read/write platform having a second substrate;

a plurality of tips connected with said moveable read/write platform;

a media movement mechanism operably attached to said moveable media and configured to move said media platform in response to media control signals; and

a read/write platform movement mechanism operably attached to said read/write platform and configured to move said read/write platform in response to read/write platform control signals;

wherein each of said plurality of tips can cause the formation of an anomaly on said surface and can read an anomaly on said surface;

wherein said first and second substrate expand at substantially the same rate over an operating temperature range.

97. (New): The apparatus of claim 96, wherein the first and second substrates are comprised of the same material.

98. (New): The apparatus of claim 96, wherein the first and second substrates are comprised of different material.